DOCUMENT RESUME

ED 202 847 SP 018 292

AUTHOR Webb, James L.; And Others
TITLE Survey of the Nutrition Knowledge Of Practicing Male and Female Physical Educator/Coaches.
PUB DATE [79]
NOTE 14p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Athletes; *Athletic Coaches; *Dietetics; Health Education; *Knowledge Level; *Nutrition Instruction; Physical Education; Secondary Education; Sex Differences; Teacher Education; Teacher Improvement

ABSTRACT

An assessment was made of the extent of nutrition knowledge of physical education teachers and coaches. The investigation addressed three primary questions: (1) Do practicing physical educator/coaches possess nutritional knowledge comparable to that of college students enrolled in a university basic nutrition class?; (2) Do male and female physical educator/coaches exhibit similar levels of nutrition knowledge?; and (3) Within a single group, are differences in knowledge evident when examining selected categories of information?. Questionnaires were submitted to participants in the 29th Annual California Workshop for Physical Education and Athletic Coaching. It was concluded that these professionals did not possess dietary knowledge equal to that of students taking a university basic nutrition class. No differences were found in the knowledge level of male and female coaches, and both groups exhibited deficient levels of information which fluctuated from category to category. These findings support the contention that physical educator/coaches are not adequately prepared in nutritional science, and a need exists for better preservice and inservice training. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED202847

Survey of the Nutrition Knowlege Of Practicing Male and Female Physical Educator/Coaches

James L. Webb, Ph.D., Director:
Human Performance Laboratory,
California Polytechnic State University,
San Luis Obispo CA 93407

Andrew J. Proctor, Ph.D., Assistant
Professor of Physical Education,
California Polytechnic State University,
San Luis Obispo, CA 93407

Marjorie Cho, Ph.D., R.D.
Professor of Dietetics
University of Hawaii
Honolulu, Hawaii 96844

Running Head: Nutrition Knowledge of Male and Female Physical Educator/Coaches

SP 018292

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
James L. Webb
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ABSTRACT

In order to evaluate the nutritional knowledge of practicing physical educator/coaches, a questionnaire/test was administered to 92 female and 49 male participants attending two California teaching/coaching workshops. Scores were separated into seven categories of inquiry and comparisons made by chi-square analysis, both between sexes and against values obtained from students enrolled in a university nutrition class. Within group variability of knowledge was also assessed for the three groups. Findings revealed that the nutrition class scored significantly ($P < .05$) higher in all areas surveyed and showed no within group variations in knowledge. Conversely, with the exception of information relating to "water/electrolyte information" and "miscellaneous nutrition information", no significant differences were found between knowledge scores of male and female physical educator/coaches. However, both coaching groups showed significant variability in knowledge from category to category. Results support the need for formal training in nutrition science for these professionals.

A Survey of the Nutrition Knowledge of Practicing Male and Female Physical Educator/Coaches

It has become increasingly apparent that the physical educator/coach is an influential figure in the lives of young people, educational colleagues, and the community population at large for disseminating information relating to all aspects of nutrition. Specifically this professional is being called on for guidance in weight maintenance/modification programs, for advice pertaining to dietary regimens, for direction regarding meal composition, frequency of feedings, and food sources. He/she is queried about health food fads, spot reducing, body wrapping, low cholesterol diets, salt free diets, dietary supplementation and a conglomeration of other areas of interest to the general population.

In the school/university environment this person frequently serves the multi-faceted role of physical educator, health educator, trainer and coach and with these responsibilities is confronted with questions involving pre-game meals, training table diets, carbohydrate loading, protein powders, desiccated liver, megavitamin/mineral therapy, dextrose tablets, electrolyte drinks, liquid meals, anabolic steriods and numerous other concerns dealing with nutritional fads, fallacies and practices as they relate to sports and athletics.

The responsibility of serving as a valid resource person for these diversified populations emphasizes a need for fundamental understanding of scientifically derived nutritional facts and practices, coupled

with sound knowledge in the areas of athletic training, exercise physiology and sports medicine. Anything less increases the probability of providing misinformation and of further perpetuating already existing violations of good nutrition.

Are these expectations realistic, and if so, are they being met? How knowledgeable are coaches and physical educators with respect to basic and applied nutrition? What are their practices? Literature investigating these questions is scanty.

In one of the earlier studies probing this area, Horwood (1964) sampled head coaches from a nationwide, randomly selected list of 551 public secondary schools. He found little consistency in the manner in which high school athletes were being advised to control their food consumption, that dietary recommendations varied greatly according to the section of the nation in which a coach resided and that a major portion of the coaches based their dietary advice on personal experience, rather than on established nutritional guidelines. Similar findings were shown by Spaans (1976) who examined the nutritional knowledge and practices of 435 California high school coaches. She determined that although coaches have a high degree of interest and concern in the field of nutrition, they are relatively unknowledgeable in this area, rely heavily on one another as nutritional resources and frequently make dietary recommendations which are contrary to accepted practice. Bentivegna, Kelley, and Kalenak (1979) reported nutritional knowledge to be "obsolete" or "inaccurate" in 95% of the 75 trainers and coaches they questioned. None of the groups perceived themselves as being up

to date on new information relating to basic and applied sport nutrition, only 43% felt they were moderately informed and the majority expressed a need for more information. Da in (1970) observed that dietary supplementation was widespread and, in many cases, mandatory in the 55 university athletic training-room programs he surveyed. He reported that differences in opinion regarding selection and benefits of dietary aids, and inconsistencies regarding their usage, reflected a lack of nutrition knowledge on the part of trainers. Wolf, Wirth and Lohman (1979) found questionable nutritional practices being employed by a significant number of "Big Ten" conference university coaches. Their actions included recommendations for nutrient supplementation, use of steak and other high protein food as an essential component of precompetition meals, subjective methods of evaluating body fatness for guidance in achieving optimal weight, and dietary prescriptions for weight change. Practices occurred in spite of the fact that seven of ten coaches reported they rarely read about the nutritional aspects of coaching and 75% admitted a need for more knowledge of diet and nutrition.

Practices, concepts and nutrition theory are propogated by those who fall under the tutorage of these educator/coaches (Williams, 1976; Hein, 1967). Cho and Fryer (1974a; 1974b) found the nutritional knowledge of upper division and graduate physical education (PE) majors to be significantly less than students enrolled in a beginning nutrition class. Correspondingly, dietary recommendations made by these students reflected less scientific basis than those expounded by the nutrition group. When queried about their backgrounds, the PE majors reported

that most nutritional information was derived from high school and college coaches.

Thus it is obvious that, historically, research has been bleak in its portrayal of the nutritional competency of the physical educator/coach. If this picture is valid, then the institutions entrusted with the initial responsibility for educating these professionals, along with the agencies and avenues used for maintaining and updating their nutritional knowledge, have been less than effective in approach.

The present study was undertaken to further explore this perplexing concern. It involved a nutrition knowledge assessment of a sample of male and female physical educators and coaches, the majority of which were currently practicing in the state of California. Specifically the investigation addressed itself to three primary questions:

1. Do practicing physical educator/coaches possess nutritional knowledge comparable to that displayed by college students enrolled in a university basic nutrition class?
2. Do male and female physical educator/coaches exhibit similar levels of nutrition knowledge?
3. Within a single group, are differences in knowledge evident when examining selected categories of information?

PROCEDURES

Individuals attending the 29th Annual California Workshop for Physical Education and Athletic Coaching and those enrolled in the 27th California Physical Education Workshop for Women in Secondary Schools, scheduled during the summer, 1976, were used as the source of information

for the present study. These workshops are sponsored annually by the California Association for Health, Physical Education and Recreation, California Polytechnic State University, San Luis Obispo, and the California State Department of Education, have limited enrollments and are consistently sought out and attended by highly qualified physical educator/coaches residing both within and outside the state.

Questionnaires, along with a cover letter explaining the purpose, were distributed to workshop participants during the first week and collected the second week of each conference. Participation in the survey was voluntary. Of the 300 packets dispensed, 165 (53%) were returned. However, due to omitted and/or incomplete information, only 141 samples (49 male and 92 female) were selected for analysis. Identical sampling packets were administered, at the conclusion of the summer term, to students (n=19) of varying academic disciplines enrolled in a basic nutrition course at the university. During development the questionnaire was pretested on and critiqued by selected individuals (faculty and graduate students), affiliated with the university, who were considered knowledgeable and proficient in the areas of basic and applied nutrition. The final format, organization and content resulted from this pilot work.

The instrument, in addition to containing a section requesting demographic data, consisted of 65 multiple choice questions with 261 responses. Subjects were instructed to examine all answers, circle those believed to be "true" and to leave those thought to be "false". Questions and responses were arranged in a random order to assess knowledge in seven areas:

1. Nutritional Concepts Applied to Sport (53 responses/20.3%)
2. Weight Maintenance/Modification (20 responses/7.7%)
3. Water/Electrolyte Information (17 responses/6.5%)
4. Food Functions (65 responses/24.9%)
5. Food Sources (53 responses/20.3%)
6. Fads and Fallacies (21 responses/8.0%)
7. Miscellaneous Nutritional Information (32 responses/12.3%)

Data was coded and treated statistically by computer (Nie, Hull, Jenkins, Steinbrenner, Brent, 1975). Chi-square analysis (Johnson, 1973) was used to determine the nature of the relationship between sampling groups (male physical educator/coaches, female physical educator/coaches, nutrition class) and to examine the relative constancy of knowledge among the seven categories of inquiry within each particular group. An $\alpha = .05$ was selected for testing statistical significance.

RESULTS AND DISCUSSION

Demographic data revealed that of those female workshop subjects who participated in the study, the majority were less than 45 years of age, had received undergraduate degrees in physical education during the previous 15 years and were principally responsible for teaching physical education and health as well as coaching both school affiliated and nonaffiliated sports. Findings for the male workshop participants were similar, with the exceptions that the men were slightly older, had received their bachelor degrees earlier and had more involvement in health instruction and fewer responsibilities in coaching than their

female counterparts. Also, a greater percentage of men had received their initial training in academic areas other than physical or health education. Subjects representing the nutrition class consisted of 17 female and 2 male undergraduate students whose ages ranged from 18-25 years and who were enrolled in a variety of academic disciplines. None had any formal experience as a teacher and/or coach.

Nutrition knowledge scores, recorded as percentages of correct responses for the population samples, are presented in Table 1. Information is subdivided by category of inquiry. An examination of the data reveals that in each of the seven areas tested, subjects representing the basic nutrition class scored significantly higher ($P < .05$) than did either of the teaching/coaching groups. Mean correct percentage responses for the students ranged from a high of 80.6 in the category of "miscellaneous nutrition information" to a low of 71.8 in the area dealing with "water/electrolyte information". When submitted to chi-square analysis, test results for the class were found to be constant from category to category and depicted breadth of knowledge over a wide range of questions. Also, using 70% correct response as a minimum criterion, it was noted that the group possessed an acceptable level of nutrition knowledge in all areas surveyed.

Conversely, when test scores from the two samples of workshop participants were compared by category, it was determined that significant ($P < .05$) differences existed only in "water/electrolyte" and "miscellaneous" nutritional information. Female physical educator/coaches exhibited greater knowledge in both areas. Values in the remaining five categories were similar for the two populations. The highest

and lowest mean percentage scores recorded for the women were 69.9 (Fads and Fallacies) and 58.2 (Food Functions) respectively whereas the men reported values of 69.2 (Fads and Fallacies) and 51.4 (Water/Electrolyte Information) as their respective high and low achievements. As evidence by significant chi-square values, (X^2 = 135.01 for females and X^2 = 96.82 for males), knowledge was determined to be significantly variable among the categories within each group. Also, it was noted that although relatively close with respect to information dealing with "Fads and Fallacies", none of the category scores for either group reached the 70% criterion selected as a satisfactory level of knowledge.

Thus, in summary it must be concluded that neither of the professional groups possessed dietary knowledge equal to that of a university, basic nutrition class, that with the exceptions of "Water/Electrolyte" applications and "Miscellaneous" information, no differences existed between the female and male coaches, and that both of these latter groups exhibited deficient levels of information which fluctuated dramatically from category to category. Finally, within the limitations of this study, the findings provide support to the contention that individuals professionally involved in the teaching/coaching profession are not adequately prepared in nutritional science and that a need exists for better training not only during initial academic processes but through later, in-service programs as well.

Table 1 Chi-square analysis of the nutritional knowledge between and within three selected populations when examining seven categories of information

	Mean Correct Response by Group[1]			
Category	Male Physical Educator/Coach (n=49)	Female Physical Educator/Coach (n=92)	Nutrition Class (n=19)	Results
Nutrition applied to sport	62.3	63.3	75.1	Significant*
Weight Maintenance/Modification	59.5	60.5	74.5	Significant*
Water/Electrolyte Information	51.4	60.8	71.8	Significant*, +
Food Functions	57.5	58.2	77.4	Significant*
Food Sources	64.2	65.8	78.1	Significant*
Fads and Fallacies	59.2	69.9	76.2	Significant*, +
Miscellaneous Nutritional Information	57.6	68.1	80.6	Significant
Results	Significant ≠	Significant ≠	Non-significant	

[1]Values are reported as percentages of maximum possible correct scores.

*Differences exist between class and both professional groups ($df=1, \alpha=.05, X^2 \geq 3.84$).

+Differences exist between male and female professional groups ($df=1, \alpha=.05, X^2 \geq 3.84$).

≠Differences exist among the seven categories of inquiry ($df=6, \alpha=.05, X^2 \geq 12.592$).

REFERENCES

Bentivegna, A., Kelley, E.J., and Kalenak, A. Diet, fitness, and athletic performance. The Physician and Sports Medicine, 1979, 7, 99-105.

Cho, M. and Fryer, B.A. Nutritional knowledge of collegiate physical education majors. Journal of the American Dietetic Association, 1974. 65, 30-34. (a)

Cho, M. and Fryer, B.A. What foods do physical education majors and basic nutrition students recommend for athletes? Journal of the American Dietetic Association, 1974, 65, 541-544. (b)

Davin, E.J. Nutritional ergogenic aids in athletic performance. Unpublished senior thesis, California Polytechnic State University, San Luis Obispo, 1970.

Hein, F. Improvement of food selection through physical education and athletic programs. Journal of School Health, 1967, 37, 340-345.

Horwood, W.A. A national study of the current practices of secondary coaches in recommending diets for athletes. Unpublished doctoral dissertation, Michigan State University, 1964.

Johnson, R.R. Elementary statistics. North Scituate, Mass: Duxbury Press, 1973.

Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K., and Brent, D.H. Statistical package for the social sciences. San Francisco: McGraw-Hill Co., 1975.

Spaans, L.N. The relationship between the nutrient recommendations made by high school coaches and the current health conscious culture. Unpublished master's thesis, California Polytechnic State University, San Luis Obispo, 1976.

Williams, M.H. Nutritional aspects of human physical and athletic performance. Springfield: Charles C. Thomas Co., 1976.

Wolf, E.M.B., Wirth, J.C., and Lohman, T.G. Nutritional practices of coaches in the big ten. The Physician and Sports Medicine, 1979, 7, 113-124.